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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,045	12/18/2001	William A. Ahroon	920070.401	6056

27370 7590 07/18/2005

OFFICE OF THE STAFF JUDGE ADVOCATE  
U.S. ARMY MEDICAL RESEARCH AND MATERIEL COMMAND  
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504 SCOTT STREET  
FORT DETRICK, MD 21702-5012

EXAMINER

KNEPPER, DAVID D

ART UNIT	PAPER NUMBER
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2654

DATE MAILED: 07/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/025,045

Applicant(s)

AHROON, WILLIAM A.

Examiner

David D. Knepper

Art Unit

2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 Dec 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>18Mar02 &amp; 17Mar05</u>   | 6) <input type="checkbox"/> Other: _____                                    |

1. Applicant's correspondence filed on 18 Dec 2001 has been received and considered. Claims 1-16 are pending.

The IDS received 18 March 2002 and 17 March 2005 was fully considered. However, the patents listed on the 17 Mar 2005 were directed towards noise reduction, which is not claimed. If some particular relevance exists it should be pointed out by the applicant.

#### **Abstract**

2. The Abstract of the Disclosure is objected to because it fails to focus on the claimed invention. Correction is required. See M.P.E.P. § 608.01(b).

#### **Drawings**

3. The drawings are objected to because there is no figure showing a “calibrated spoken word”. If the applicant considers this a significant element, then a figure showing the waveform of a word compared to the waveform of a “calibrated” word would be considered a minimal disclosure showing what, if any, significant changes are made to known methods for presenting words. Similarly, there is no figure showing how “speech intelligibility” is actually measured. Instead of showing the steps or calculations necessary to perform the desired results of the claims, the applicant has merely placed the terminology inside a box while omitting any details.

Figures 1A – 1E are photographs that are unclear. It is difficult to distinguish elements even though some reference numbers are provided.

Figures 1C – 1E: The fields mentioned in the specification are not labeled in these figures. These figures are described in reference to prior art (i.e. - PEST, Hughson-Westlake

procedures). This implies that these figures should be labeled as prior art.

Correction is required.

#### **Priority Claims**

4. The applicant(s) should check their filing receipts and/or the Patent Application Information Retrieval (PAIR) system for the acknowledgment of their **domestic** priority or benefit claims (if any) under 35 USC 119(e), 120 or 121 (37 CFR 1.78).

#### **Claims**

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a known method of testing speech intelligibility using spoken or recorded words, does not reasonably provide enablement for any new or unobvious implementations or calculations for measuring calibration or speech thresholds based upon calibration. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The specification, for example, on page 5 indicates that the inventor noticed discrepancies in known methods for testing speech thresholds “will introduce inaccuracies into the SRT testing in that differences in loudnesses can often somewhat offset the adjustment of the

playback gain by the tester during testing” (page 5, specification, lines 5-7). The stated solution is to use words that are “‘calibrated’ such that the words have substantially the same sound energy – at least as viewed against some common scale...” (page 5, lines 17-20).

Conflicting evidence that this is new or unobvious exists in the applicant’s description of prior art under his “Description of the Related Art” on page 2: “SRT testing generally provides a measure of sound intensity (in decibels (dB), which is related to the ‘loudness’ of speech as perceived by humans) at which words become intelligible.” Based on this statement attributed to prior art, it would appear that one of pedestrian skill in the art of speech signal processing would perform some form of calibration on the words being used to ensure that loudness for each word is the same, especially since the well known dB scale is specified.

The applicant’s statements in the rest of the specification (such as that quoted from page 5) indicate that the invention is a subtle improvement requiring more rigorous calculations than previously employed yielding greater precision. However, the specification fails to provide any specific calculations. The references made to RMS (root mean square) and peak value calculations are generic and appear in the prior art with greater precision than provided in the applicant’s specification. Minimal disclosure would require the equations used to be disclosed. Broad disclosure could have been provided by the applicant using figures that have examples of word waveforms [or related displays of energy, SPL (sound pressure levels), peak tracking, etc.] that show comparisons before and after the improved calibration techniques were applied to one or more words.

Even in the provided figures, there is no showing of one or more steps that would actually “calibrate” any word or words. To the contrary, the figures only show a step 202,

“present at least one calibrated spoken word” indicating that whatever calibration technique might be used has already been performed and the only thing done by the invention is to allow the data to be presented. As noted in 37 CFR 1.83(a)-(c), conventional features may be illustrated in a box and improvements may be shown as disconnected from the old structure (see also MPEP 608.02 (d)). Thus, it would appear that the applicant’s figures indicate that the calibration is best considered as part of some undisclosed old structure.

The written description implies that the improvements described by the applicant in the specification are subtle applications of mathematical measurements (namely, RMS and peak values) intended to somehow “calibrate” individual words. However, details are not provided in the specification that would be necessary to implement and perform this desired result.

The specification indicates on page 2, lines 20-27, that standard speech reception threshold (SRT) testing will be performed: “SRT testing generally provides a measure of sound intensity (in decibels (dB), which is related to the ‘loudness’ of speech as perceived by humans) at which words become intelligible.” This appears to cover the details of claims 5-9 and 14-18 if interpreted in view of the disclosure that such techniques are well-known. This is pointed out because, as was previously mentioned, the specification indicates that the improvement is not the actual performance of SRT, but the use of calibrated words to overcome deficiencies that can be solved by employing some new form of calibration.

7. Claims 1-20 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The specification indicates that the improvement would be the form of calibration applied to words and that the method for measuring SRT is well known. However, the claims do not clearly indicate this. Claims 1, 10 and 19 have one step, which presents a “calibrated spoken word” which could be interpreted to mean that the calibration technique is obvious and that the claimed invention should be interpreted as a new use of an old form of word calibration. However, “measuring a speech reception threshold” in these claims could be interpreted as an indication that the invention is really SRT test.

Claims 5-9 and 14-18 appear to be towards details for performing the SRT test instead of the type of calibration.

Thus, it is unclear whether the applicant intends to claim an improved form of word calibration using known SRT or a new form of SRT using known calibration. In order to further prosecution, the former will be assumed based on statements from the specification.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-20 are rejected under 35 U.S.C. § 103 as being unpatentable over Engebretson

(5,548,082) in view of Taylor (Ref. AP, "PEST: Efficient Estimates on Probability Functions").

As per claims 1, 10, "a method" and "a system" is taught by Engebretson (see title):

"presenting at least one calibrated spoken word" [suggested by his speech, and other stored sounds, col. 7, line 1 – see also col. 14, lines 6 and 28 noting also his calibrating step 209, fig. 5 which performs calibration for ear impedance. Columns 15-20 show equations that employ root-mean-square (RMS) and peak value calculations to properly calibrate all sounds. Column 18, lines 36-60 teach that the input sounds (including speech waveforms) are carefully controlled (calibrated) as he specifically mentions controlling certain parameters (e.g., sound pressure level), col. 18, line 44 for all input sounds indicating that any stored sounds utilized must have such parameters previously measured for accurate control (calibration).]; and

"measuring a speech reception threshold utilizing the at least one calibrated spoken word" (his speech intelligibility test operations of host computer 14 which uses a list of ...test words... utilized for ...the performance of the hearing aid for particular words or other sounds can be observed and subsequent fine adjustments facilitated, col. 21, lines 41-60 – see also the description of the test steps in col. 18, lines 13-20 which indicate that these test sounds will be presented varying in loudness and frequency and in col. 19, lines 5-30 that tests will determine a hearing threshold).

It is noted that Engebretson does not explicitly teach "calibrated spoken word". However, he teaches that a stored list of spoken words will be used for a speech intelligibility test and that the parameters including SPL will be carefully controlled. He also teaches details for calibration techniques which rely on RMS and peak mathematical calculations. It would have been obvious for a person having ordinary skill in the pertinent art, at the time the invention



was made, to use RMS and peak calculations to calibrate words because Engebretson teaches that such calibration in combination with an SI test including a list of spoken words will improve hearing aid performance for particular words.

Claims 2, 3, 11, 12 are rejected as claiming well known speech signal processing mathematical calculations (see claim 1 above).

Claims 4, 13: Using “at least one audio speaker” is taught by Engebretson in figures 1 and 4. See speakers 44, 79 and 81.

Claims 5-7, 14-16: “accepting test subject input...decreasing [or] increasing a speech parameter...determining if a threshold is met” is taught by Engebretson’s patient is asked to listen for test sounds and when one is heard, to touch the screen if the IRU 46 (col. 18, lines 13-15) ...varying in loudness and frequency [speech parameter, col. 18] and threshold (col. 19) as substantially noted above under the rejection of claims 1 and 10.

Claims 8, 9, 17 and 18: Official Notice is taken that the Hughson-Westlake and PEST procedures were not invented by the applicant and are well known test procedures to those of ordinary skill in the art.

Claims 19 and 20 are rejected under similar arguments as applied to claim 1 above. The use of various forms of recordable media is taught by Engebretson. See for example his hard disk 28 and flex disk 26 of figure 1.

10. Claims 5-18 are rejected under 35 U.S.C. § 103 as being unpatentable over Engebretson (5,548,082) in view of Taylor (Ref. AP, “PEST: Efficient Estimates on Probability Functions”).

Claims 5-7, 14-16: “accepting test subject input...decreasing [or] increasing a speech parameter...determining if a threshold is met” is taught by Engebretson’s patient is asked to listen for test sounds and when one is heard, to touch the screen if the IRU 46 (col. 18, lines 13-15) ...varying in loudness and frequency [speech parameter, col. 18] and threshold (col. 19) as substantially noted above under the rejection of claims 1 and 10. While it is believed that one of ordinary skill in the art would find this type of procedure obvious in view of the variations taught by Engebretson used to determine a threshold, Taylor explicitly teaches that this type of increasing/decreasing algorithm used to find psychoacoustic thresholds has been well-known since 1967.

Claims 9 and 18: The PEST procedure was not invented by the applicant and is explicitly taught by Taylor (see above and title).

11. Claims 8 and 17 are rejected under 35 U.S.C. § 103 as being unpatentable over Engebretson (5,548,082) in view of Taylor (Ref. AP, “PEST: Efficient Estimates on Probability Functions”) in further view of Carr (Development of an Audiological Test Procedure Manual for First Year Au.D. Students).

While it is believed that one of ordinary would know that the type of test algorithms are well known as previously noted, Carr is additionally applied to show that a modified Hughson-Westlake procedure is well known in the art (see Carr, page 49). While the Carr reference is dated 2001, the teaching to which she ascribes this procedure is dated 1986 (her reference to the “Martin and Dowdy Spondee Threshold Procedure” of 1986). The Examiner does not have ready access to the 1986 reference but it must be noted that the steps on page 49 of Carr appear

to be obvious variants of the PEST procedure (noted above) applying spondaic words or spondees (see Carr, pages 135-137).

### **Prior Art**

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Posen (5,732,396) is cited to show that it is well known to use vocabulary words or phrases to calibrate hearing aid screening devices.

John (6,602,202) is cited to show that it is known to perform root mean square calculation for standard calculation of SPL and to use conversational speech to detect individuals' hearing thresholds.

Moser (4,847,763) is cited to show that it is known to store speech and to use a computer for speech discrimination testing using any desired test word and to use the results for adjusting hearing aids or for calibration purposes.

Hynninen (A Software-Based System for Listening Tests) is cited because it shows that it is well known to perform a variety of psychoacoustic tests using flexible software that can allow anyone to devise their own test using Internet/browser software.

Kaplan (The Taylor and Creelman Procedure PEST: Parameter Estimation by Sequential Testing) is cited to show that the PEST procedure is well known and has itself been modified and re-stated in many obvious variants.

13. Some correspondence may be submitted electronically. See the Office's Internet Web site <http://www.uspto.gov> for additional information.

Please address mail to be delivered by the United States Postal Service (USPS) as follows:

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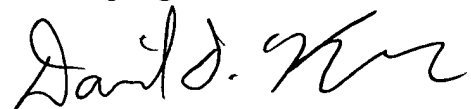
Fax phone number for Group 2600 is (703) 872-9306

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Knepper whose telephone number is (571) 272-7607. The examiner can normally be reached on Monday-Thursday from 07:30 a.m.-6:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil, can be reached on (571) 272-7602.

For the Group 2600 receptionist or customer service call (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Inquiries regarding the status of submissions relating to an application or questions on the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028 between the hours of 6 a.m. and midnight Monday through Friday EST, or by email at [ebc@uspto.gov](mailto:ebc@uspto.gov). For general information about the PAIR system, see <http://pair-direct.uspto.gov>.



David D. Knepper  
Primary Examiner  
Art Unit 2654  
July 13, 2005